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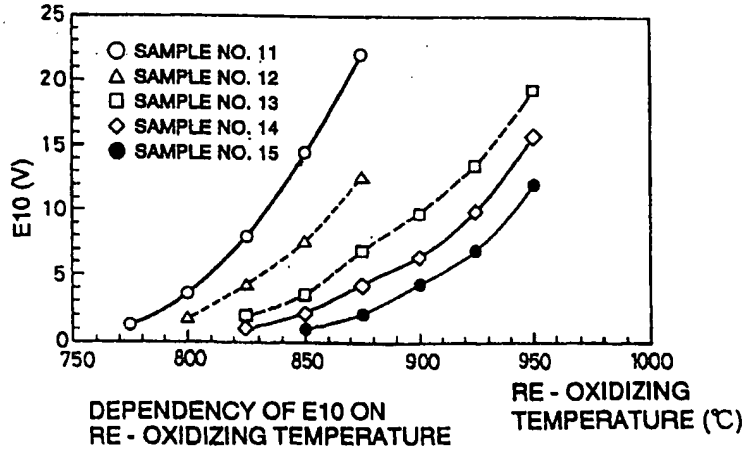
(54) Voltage-dependent nonlinear resistor ceramics

(57) A voltage-dependent nonlinear resistor or varistor ceramic composition consists essentially of (1) an oxide of the formula: $\{[Sr_{(1-x-y)}Ba_xCa_y]_z\}TiO_3$ wherein $0.3 < x \leq 0.9$, $0.1 \leq y \leq 0.5$, $x + y \leq 1$, and $0.84 < z < 1.16$, (2) 0.001 to 5.000 mol% of at least one oxide of niobium, tantalum, tungsten, manganese or R wherein R is yttrium or lanthanide, (3) 0.001 to 5.000 mol% of SiO_2, and (4) 0.001 to 5.000 mol% of MgO. When the varistor voltage is controlled by changing a re-oxidizing temperature without changing the composition, a satisfactory nonlinear index α is available over a wide range of varistor voltage. The dependency of varistor voltage on heat treating temperature is reduced.

FIG. 3



DEPENDENCY OF E10 ON RE - OXIDIZING TEMPERATURE

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